## A modal perspective of preferential entailment

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## Abstract

An entailment relation between premiss X and consequence Y is conservative if a rigid constraint of truth-preservation is applied, and *liberal* if a more flexible constraint is imposed, permitting Y to be false under at least some circumstances that make X true. This simple opposition is complicated by the expressiveness of the object language to which premiss and consequence belong. A criterion giving a liberal entailment relation in the context of a nonmodal propositional language may induce a conservative entailment relation when the language is enriched by appropriate modal operators. We illustrate this by presenting a liberal entailment relation  $\succ$  induced by a suitable (Noetherian, modular, strict, partial) preference ordering on states. Interpreting the preference ordering as accessibility relation establishes modular Gödel-Löb logic as the modal logic of rational preferential reasoning. The entailment relation associated with this enriched modal language of preferential reasoning is now conservative, enabling the use of modal reasoning tools.